

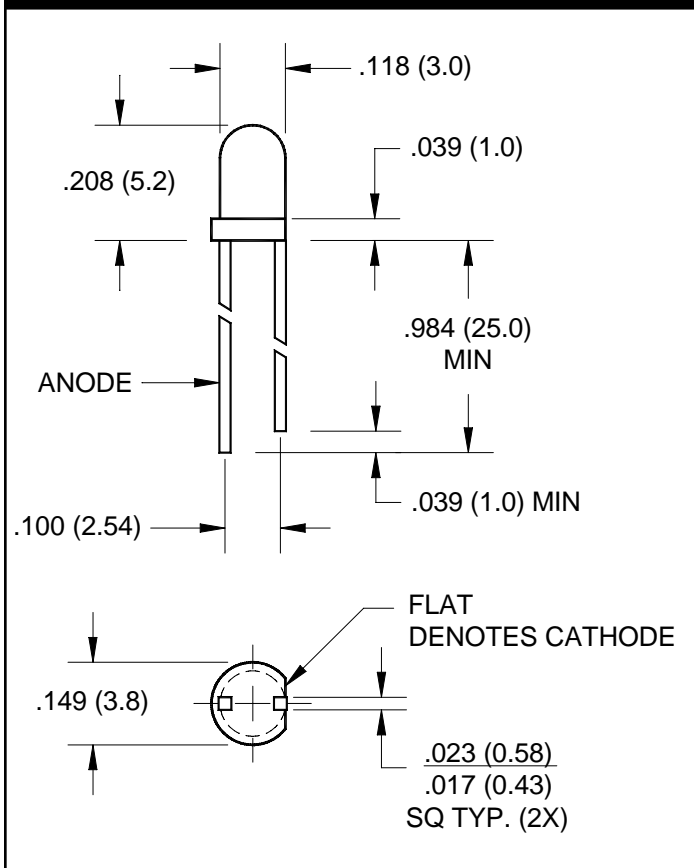
# T-100 (3mm)

## SOLID STATE INDICATOR LAMPS

RED DIFFUSED      QL202HD  
 HER DIFFUSED      QL202ID  
 YELLOW DIFFUSED   QL202YD  
 GREEN DIFFUSED    QL202GD

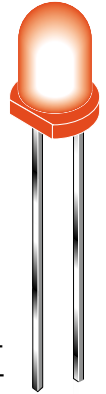
RED CLEAR          QL202HT  
 HER CLEAR          QL202IT  
 YELLOW CLEAR      QL202YT  
 GREEN CLEAR        QL202GT

### PACKAGE DIMENSIONS



### FEATURES

- Popular T-100 package
- Choice of viewing angles
- Choice of tinted or tinted diffused lens



### DESCRIPTION

These T-100 LEDs are used as general purpose indicators. They come in either a wide angle (70°) diffused lens or a moderate angle (32°) clear lens. The red and green lamps are made with GaP LEDs on a GaP substrate. The HER and yellow lamps are made with GaAsP LEDs on a GaP substrate. All have an epoxy encapsulation lens.

### NOTES:

1. Dimensions for all drawings are in inches (mm).
2. Lead spacing is measured where the leads emerge from the package.
3. Protruded resin under the flange is 1.5 mm (0.059") max.
4. Tolerance is +/-0.12" (0.3mm) unless otherwise noted.

**ABSOLUTE MAXIMUM RATING** ( $T_A = 25^\circ\text{C}$ )

Parameter	Symbol	Red	Her	Green	Yellow	Units
Power Dissipation	$P_D$	100	100	100	100	mA
Peak Forward Current (at $f = 1.0$ KHz, Duty factor = 1/10)	$I_{FM}$	50	100	100	100	mA
Reversed Voltage	$V_R$	5	5	5	5	V
Continuous DC Forward Current	$I_F$	15	20	20	20	mA
Lead Soldering Time at $260^\circ\text{C}$	$T_{SOL}$	5	5	5	5	sec
Operating Temperature	$T_{OPR}$	-40 to +100	-40 to +100	-40 to +100	-40 to +100	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-40 to +100	-40 to +100	-40 to +100	-40 to +100	$^\circ\text{C}$

**ELECTRICAL / OPTICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$ )

Part Number	Symbol	QL202HD	QL202ID	QL202GD	QL202YD	Condition
Luminous Intensity (mcd)						$I_F = 10\text{mA}$
Minimum	$I_V$	0.5	1.1	1.1	1.1	
Typical		1.6	6.0	6.0	4.5	
Forward Voltage (V)						$I_F = 10\text{mA}$
Typical	$V_F$	1.7	1.7	1.7	1.7	
Maximum		2.1	2.0	2.1	2.0	
Spectral Line Half Width (nm)	$\Delta\lambda$	90	45	30	35	$I_F = 10\text{mA}$
Peak Wavelength (nm)	$\lambda_p$	697	635	565	585	$I_F = 10\text{mA}$
Viewing Angle (Total) ( $^\circ$ )	$2\theta$ 1/2	70	70	70	70	$I_F = 10\text{mA}$

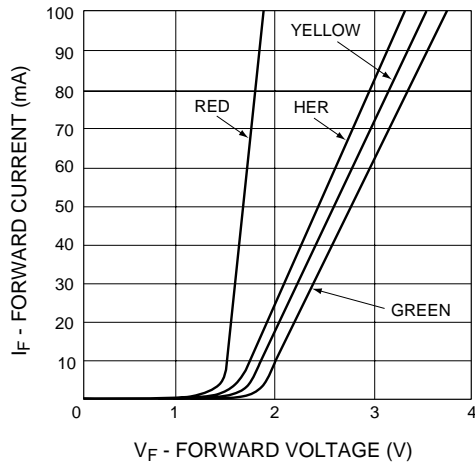
**ELECTRICAL / OPTICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$ )

Part Number	Symbol	QL202HT	QL202IT	QL202GT	QL202YT	Condition
Luminous Intensity (mcd)						$I_F = 10\text{mA}$
Minimum	$I_V$	2.5	3.5	3.0	3.5	
Typical		10.0	17.0	15.0	15.0	
Forward Voltage (V)						$I_F = 10\text{mA}$
Typical	$V_F$	1.7	1.7	1.7	1.7	
Maximum		2.1	2.0	2.1	2.0	
Spectral Line Half Width (nm)	$\Delta\lambda$	90	45	30	35	$I_F = 10\text{mA}$
Peak Wavelength (nm)	$\lambda_p$	697	635	565	585	$I_F = 10\text{mA}$
Viewing Angle (Total) ( $^\circ$ )	$2\theta$ 1/2	32	32	32	32	$I_F = 10\text{mA}$

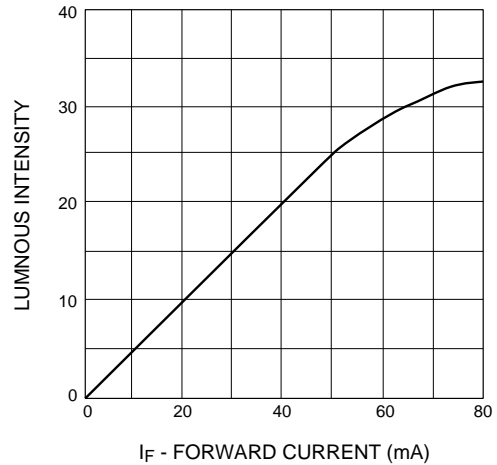
1. The leads of the device were immersed in molten solder at  $260^\circ\text{C}$ , to a point 1/16 inch (1.6 mm) from the body of the device per MIL-S-750, with a dwell time of 5 seconds.

**TYPICAL PERFORMANCE CURVES** ( $T_A = 25^\circ\text{C}$ )

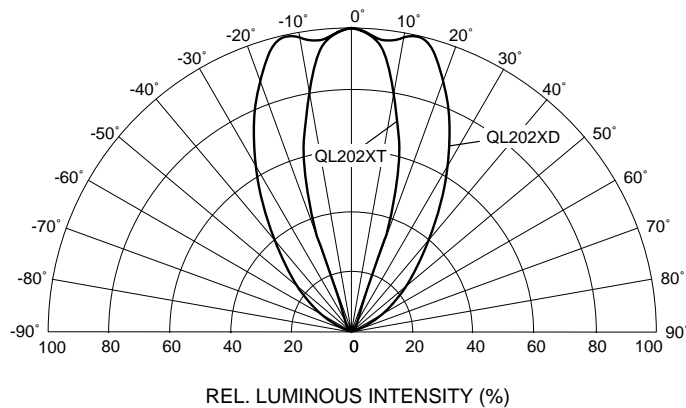
**Fig. 1 Forward Current vs. Forward Voltage**



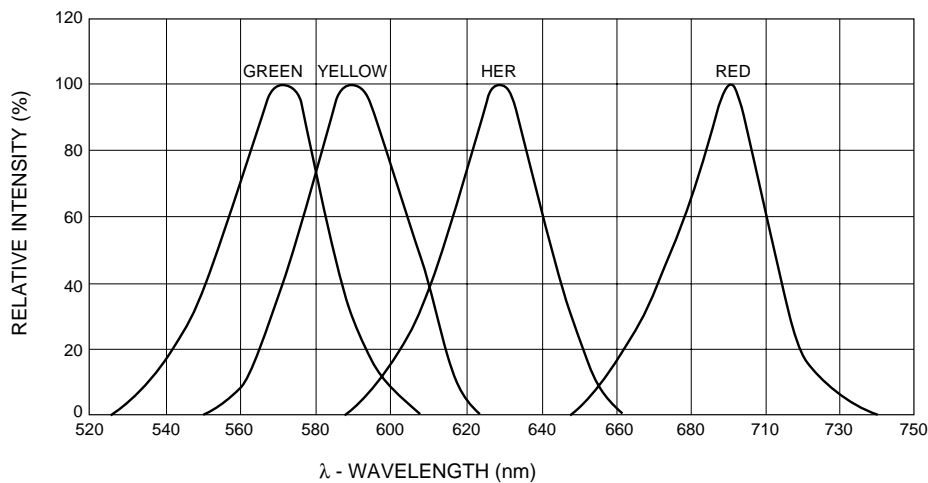
**Fig. 2 Luminous Intensity vs. Forward Current**



**Fig. 3 Spatial Distribution**



**Fig. 4 Relative Intensity vs. Peak Wavelength**



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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.